**SECTION 1  PRODUCT IDENTIFICATION**

<table>
<thead>
<tr>
<th>Nominal Voltage(V)</th>
<th>3.7</th>
</tr>
</thead>
<tbody>
<tr>
<td>P/N</td>
<td>SP371031AH</td>
</tr>
<tr>
<td>Nominal Capacity(mAh)</td>
<td>90</td>
</tr>
<tr>
<td>UL NO.</td>
<td>MH27666</td>
</tr>
</tbody>
</table>

**Manufacture Identification**

Tianjin Lishen Battery Joint-Stock CO. LTD. 86 - 22 - 83710366

6 Lanyuan Road, Huayuan Hi-Tech Industry Park, Tianjin 300384, China 86 - 22 - 83710366

Phone Number (For Information) 86 - 22 - 83710366

Emergency Phone Number Telex

Note: Blank spaces are not permitted. If any item is not applicable or no information is available, the space must be marked to indicate that.

---

**SECTION 2  HAZARDS IDENTIFICATION**

**Primary Routes of Entry**

- Inhalation
- Ingestion
- Skin Absorption
- Eye contact

**Health Hazards**

- Acute and chronic

All chemicals are contained in a sealed can. Risk of exposure occurs only if the battery is mechanically or electrically abused (mechanical, thermal, electrical), which leads to the rupture of the battery container. Electrolyte leakage, electrode materials reaction with moisture/water or battery vent/fire may follow, depending upon the circumstances.

**Medical Conditions Generally Aggravated By Exposure**

An acute exposure will not generally aggravate any medical condition.

**Symptoms of Exposure**

- Skin contact, no effect under routine handling and use.
- No effect under routine handling and use
- No effect under routine handling and use
- No

**Reported as carcinogen**

Not applicable

---

**SECTION 3  COMPOSITION & INFORMATION ON INGREDIENTS**

**Equivalent lithium content per cell (g)**

0.027

<table>
<thead>
<tr>
<th>COMPONENTS-Chemical Name and Common Names</th>
<th>%</th>
<th>PEL</th>
<th>TLV</th>
<th>OTHER LIMITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium Cobalt Oxide</td>
<td>38%</td>
<td>12190-79-3</td>
<td>7782-42-5</td>
<td>RECOMMENDED</td>
</tr>
<tr>
<td>Graphite</td>
<td>19%</td>
<td>7782-42-5</td>
<td>7782-42-5</td>
<td>RECOMMENDED</td>
</tr>
<tr>
<td>LiPF6</td>
<td>32%</td>
<td>21324-40-3</td>
<td>623-53-0</td>
<td>RECOMMENDED</td>
</tr>
<tr>
<td>TE</td>
<td>5%</td>
<td>96-49-1</td>
<td>96-49-1</td>
<td>RECOMMENDED</td>
</tr>
<tr>
<td>EMC</td>
<td>8%</td>
<td>623-53-0</td>
<td>623-53-0</td>
<td>RECOMMENDED</td>
</tr>
<tr>
<td>PC</td>
<td>1%</td>
<td>108-32-7</td>
<td>108-32-7</td>
<td>RECOMMENDED</td>
</tr>
<tr>
<td>Nickel</td>
<td>1%</td>
<td>7440-02-0</td>
<td>7440-02-0</td>
<td>RECOMMENDED</td>
</tr>
<tr>
<td>Aluminum</td>
<td>0%</td>
<td>7440-02-0</td>
<td>7440-02-0</td>
<td>RECOMMENDED</td>
</tr>
<tr>
<td>Aluminum</td>
<td>5%</td>
<td>7440-02-0</td>
<td>7440-02-0</td>
<td>RECOMMENDED</td>
</tr>
<tr>
<td>Copper</td>
<td>11%</td>
<td>7440-50-8</td>
<td>7440-50-8</td>
<td>RECOMMENDED</td>
</tr>
<tr>
<td>Carbon</td>
<td>1%</td>
<td>7440-44-0</td>
<td>7440-44-0</td>
<td>RECOMMENDED</td>
</tr>
<tr>
<td>Polylithium fluoride</td>
<td>2%</td>
<td>24977-79-9</td>
<td>24977-79-9</td>
<td>RECOMMENDED</td>
</tr>
<tr>
<td>Polypropylene</td>
<td>1%</td>
<td>9001-07-0</td>
<td>9001-07-0</td>
<td>RECOMMENDED</td>
</tr>
<tr>
<td>Polyethylene</td>
<td>3%</td>
<td>9001-07-0</td>
<td>9001-07-0</td>
<td>RECOMMENDED</td>
</tr>
<tr>
<td>Polyethylene</td>
<td>1%</td>
<td>9002-88-4</td>
<td>9002-88-4</td>
<td>RECOMMENDED</td>
</tr>
<tr>
<td>Polypropylene</td>
<td>3%</td>
<td>9001-07-0</td>
<td>9001-07-0</td>
<td>RECOMMENDED</td>
</tr>
<tr>
<td>Polypropylene</td>
<td>9001-07-0</td>
<td>9001-07-0</td>
<td>9001-07-0</td>
<td>RECOMMENDED</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

---

**SECTION 4  FIRST-AID MEASURES**

If exposure to internal materials in cell due to damaged outer casing, the following actions are recommended.

**Eye Contact**

In case of eye contact, flush with lot of water for 15 minutes, and get medical help.

**Skin Contact**

In case of skin contact with contents of battery, flush immediately with water.

**Inhalation**

In case of light inhalation, move to an area with flash air immediately, if irritation persists, get medical help.

**Ingestion**

In case of ingestion, drink milk/water to induce vomiting and wash out, get medical help.
MATERIAL SAFETY DATA SHEET
REVISION: 0   ISSUE DATE: 2015-1-30

SECTION 6    ACCIDENTAL RELEASE MEASURES

On Land:
Place material into suitable containers. If the skin has come into contact with the electrolyte, it should be washed thoroughly with water; Sand or earth should be used to absorb any exuded material. Seal leaking battery and contaminated absorbent material should be treated by local regulation, and call local fire/police department to ask for help.

In Water:
If possible, remove from water far from body in special fixture, and call local fire/police department to ask for help.

SECTION 7    HANDLING AND STORAGE

Handling:
Take all precautions mentioned in this document and operate the battery within the temperature range of -20°C and 45°C.
No special protective clothing required for handling individual cells in corrective operational method.
Improper handling of lithium ion battery may result in injury or damage from electrolyte leakage, heating, ignition or explosion. So do not crush, pierce, short cell/battery terminals with conductive material; Do not directly heat or solder; do not throw into fire; do not place cell/battery in non conductive trays.

Storage:
Store the battery in a cool, drying place, without chemical vapor or excessive humidity.

SECTION 8    EXPOSURE CONTROLS & PERSONAL PROTECTION

Engineering Controls:
Keep away from heat and open flame, prevent hard & sharp thing penetration, store in a cool & dry place.

Personal Protection:
Respiratory Protection: Not necessary under normal operations condition. SCAB required in the event of a fire.
Eye/Face Protection: Not necessary under normal operation condition.
Glove protection: Not necessary under normal operation condition.
Foot Protection: Steel toed shoes recommended for large container handling.

Other Protective Clothing and Equipment:
Not necessary under normal operation conditions.

Hygienic Work Practices:
Not necessary under normal operation conditions.

SECTION 9    PHYSICAL /CHEMICAL PROPERTIES

Specific Gravity (H2O=1):
LiCoO2: 3.80
Graphite: 2.0~2.2

Melting Point:
LiCoO2: 1130°C
Graphite: 3500-3900°C

Appearance and Odor:
LiCoO2 is a gray odorless powder; Graphite is a black or odorless power;
Organic solvent is a colorless liquid; Lithium salt is a white, crystalline and odorless power.

SECTION 10   STABILITY & REACTIVITY DATA

Stability:

- Stable
  - Do not heat or incinerate the battery. Never impact, pierce or crush the battery.
  - Do not disassemble or modify the battery.
  - Do not charge the battery under high temperature conditions such as near a fire or in the direct sunlight.
  - Do not short-circuit the battery by connect the positive and negative terminals with a metal material.
  - Do not allow the battery to get wet or be immersed in water.

- Unstable
  - Conditions to Avoid:

Incompatibility (Materials to Avoid):
Water, salted water, other solvent with water

Hazardous Decomposition Products:
N/A

Hazardous Polymerization:

- May Occur
- Will Not Occur

Conditions to Avoid
SECTION 11 TOXICOLOGICAL INFORMATION
This product does not elicit toxicological properties during routine handling and use.

SECTION 12 ECOLOGICAL INFORMATION
Cobalt and its compounds can pose a threat if released to environment. The detail information are showed in waste disposal method in Section 13 "Disposal Considerations".

SECTION 13 DISPOSAL CONSIDERATIONS
There is no contamination during normal operation and use. Lithium batteries should have their terminals insulated prior to disposal, do not throw away a used battery and provide them for recycling company.

Open cells should be treated as hazardous waste. If the leakage or other material is Released, we should take actions as follows:
- Leave the area, allow the batteries to cool down, let the vapors to dissipate.
- Avoid skin and eye contact or inhalation of vapors. Remove spiller liquid with absorbent and incinerate after.
- Waste Disposal method: Opened cells should be treated as hazardous waste.
- Incineration: incineration should never be performed by battery users but eventually by trained professionals in authorized facilities with proper gas and fumes treatment.
- Landfilling: According to the proper laws and regulations in different countries or areas, the battery should be buried deeply in the specified place;
- Recycling: Send to authorized recycling facilities to get Co,Cu and Al, eventually through licensed waste carrier;
- There is no hazards in accordance with the UN recommendations test(UN manual of tested and criteria 38.3).

SECTION 14 TRANSPORTATION

Every package must be marked in the content that the packages are loaded in lithium cells or batteries, also add new lithium iron operation label, also need point out the corrective actions when the packages are damaged. For the batteries, the lithium content can not overpass 100Wt/h; For the bar cells, the lithium content can not overpass 20Wt/h; for the batteries, the lithium content can not overpass 100Wt/h; All the cell and battery must be verified to meet with all the requirements in Part 3 -38.3 item (UN38.3 tests) for "Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria".

SECTION 15 REGULATORY INFORMATION

SECTION 16 OTHER INFORMATION
There are no hazards in accordance with the UN recommendations test(UN manual of tested and criteria 38.3)

<table>
<thead>
<tr>
<th>Battery Number</th>
<th>SP371031AB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Voltage</td>
<td>3.7</td>
</tr>
<tr>
<td>Nominal Capacity</td>
<td>90mAh</td>
</tr>
<tr>
<td>Battery Mass</td>
<td>5g</td>
</tr>
<tr>
<td>Equivalent Lithium Content</td>
<td>0.027g</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test NO</th>
<th>Test Item</th>
<th>Criteria</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>38.3.4.1</td>
<td>Altitude Test</td>
<td>No mass loss, leakage, venting, disassembly, rupture, and fire. OCV should not be less than 90% before testing.</td>
<td>Passed</td>
</tr>
<tr>
<td>38.3.4.2</td>
<td>Thermal Test</td>
<td>No mass loss, leakage, venting, disassembly, rupture, and fire. OCV should not be less than 90% before testing.</td>
<td>Passed</td>
</tr>
<tr>
<td>38.3.4.3</td>
<td>Vibration</td>
<td>No mass loss, leakage, venting, disassembly, rupture, and fire. OCV should not be less than 90% before testing.</td>
<td>Passed</td>
</tr>
<tr>
<td>38.3.4.4</td>
<td>Shock</td>
<td>No mass loss, leakage, venting, disassembly, rupture, and fire. OCV should not be less than 90% before testing.</td>
<td>Passed</td>
</tr>
<tr>
<td>38.3.4.5</td>
<td>External Short Circuit</td>
<td>External temperature should not exceed 170deg.C. No disassembly, and fire within six hours of this test.</td>
<td>Passed</td>
</tr>
<tr>
<td>38.3.4.6</td>
<td>Impact</td>
<td>External temperature should not exceed 170deg.C. No disassembly, and fire within six hours of this test.</td>
<td>Passed</td>
</tr>
<tr>
<td>38.3.4.7</td>
<td>Overcharge</td>
<td>No disassembly, and fire within seven days of this test.</td>
<td>Passed</td>
</tr>
<tr>
<td>38.3.4.8</td>
<td>Forced Discharge</td>
<td>No disassembly, and fire within seven days of this test.</td>
<td>Passed</td>
</tr>
</tbody>
</table>
SYNERGY SCIENTECH CORP. -- Advanced Hybrid Batteries
MATERIAL SAFETY DATA SHEET

Manufacturer's CAGE: SYNERGY
Part No. Indicator: A
Part Number/Trade Name: AHB Series- Lithium ion Polymer batteries.
Model name: AHB371030PK
Voltage: 3.7V
Nominal Capacity: 90mAh;
Minimum Capacity: 85mAh
Lithium metal content: 0.03 g
Wh: 0.3Wh
Weight: 3.2g

===========================================================================
1. General Information
===========================================================================
Company's Name: SYNERGY SCIENTECH CORP.
Company's Street: 7F, No. 9, Park Ave. II, Hsinchu Science Park, Hsinchu, Taiwan 30077 R.O.C.
Company's City: HSIN-CHU, TAIWAN
Company's Emerge PhD #: 886-3-564-3700
Company's Info Ph #: 886-3-564-3700
Record No. For Safety Entry: 001
Tot Safety Entries This Sty #: 001
Status: SMJ
Date MSDS Prepared: January 1, 2015 (8th Edition)
Safety Data Review Date: January 1, 2015
MSDS Preparer's Name: Dr. Kevin Wang
Preparer's Company: SAME
MSDS Serial Number: LIASN

===========================================================================
2. Ingredients/Identity Information
===========================================================================
<table>
<thead>
<tr>
<th>Material Name. (e.g. Sn alloy)</th>
<th>Substance Name (e.g. Copper (Cu))</th>
<th>CAS No.</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>active material</td>
<td>LiCoO₂</td>
<td>12190-79-3</td>
<td>32.62</td>
</tr>
<tr>
<td>Binder-PVDF</td>
<td>Poly(vinyliden difluoride)</td>
<td>24937-79-9</td>
<td>1.04</td>
</tr>
<tr>
<td>conductive material</td>
<td>Carbon</td>
<td>1333-86-4</td>
<td>0.78</td>
</tr>
<tr>
<td>conductive material</td>
<td>Carbon</td>
<td>1333-86-4</td>
<td>0.26</td>
</tr>
<tr>
<td>foil</td>
<td>Aluminium</td>
<td>7429-90-5</td>
<td>4.61</td>
</tr>
<tr>
<td>active material</td>
<td>Carbon</td>
<td>1333-86-4</td>
<td>15.92</td>
</tr>
<tr>
<td>Binder-PVDF</td>
<td>Poly(vinyliden difluoride)</td>
<td>24937-79-9</td>
<td>1.3</td>
</tr>
</tbody>
</table>
3. Hazards Identification

Route Of Entry - Inhalation: YES
Route Of Entry - Skin: YES
Route Of Entry - Ingestion: YES

Health Haz Acute And Chronic: UNDER NORM CNDTNS OF USE, THESE CHEMICALS ARE CONTAINED IN SEALED CAN. RISK OF EXPOS OCCURS ONLY IF BATTERY IS MECHANICALLY ABUSED. ACUTE: INHAL: CONTENTS OF OPENED BATTERY CAN CAUSE CONTENTS OF OPENED BATTERY CAN CAUSE IRRIT.

Carcinogenicity - NTP: NO
Carcinogenicity - IARC: NO
Carcinogenicity - OSHA: NO

4. First Aid Measures

Explanation Carcinogenicity: NOT RELEVANT.
Signs/Symptoms Of Overexp: SEE HEALTH HAZARDS.
Med Cond Aggravated By Exp: NONE SPECIFIED BY MANUFACTURER.
WASH WITH SOAP AND WATER. EYES: IMMEDIATELY FLUSH THOROUGHLY WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. SEEK MEDICAL ATTENTION.
INGESTION: CALL MD IMMEDIATELY (FP N).
5. Fire Fighting Measures

Extinguishing Media: IN CASE OF FIRE, USE CARBON DIOXIDE OR DRY CHEMICAL EXTINGUISHERS.
Special Fire Fighting Proc: WEAR NIOSH APPROVED SCBA & FULL PROTECTIVE EQUIPMENT (FP N).
Unusual Fire And Expl Hazards: NONE SPECIFIED BY MANUFACTURER.

6. Accidental Release Measures

Wear appropriate personal protective equipment. Isolate hazard area. Keep unnecessary and unprotected personnel from entering.

7. Handling and Storage

Wear suitable chemical resistant gloves, safety glasses and filtered cartridge respirator. Goggles, full face protection and other protective clothing is required if potential exists for direct exposure to liquid battery electrolyte.
In case Material is released or spilled: Carefully recover spillages with appropriate ladle and transfer to a suitably labeled, sealable container for safe disposal. Wash the spillage area neutralize with calcium hydroxide.
Wear suitable personal protection during removal of spillages.
Be stored in clearly labeled, tightly closed exclusive containers in a cool, dry area.

8. Exposure Controls/Personal Protection

Ventilation: Use local exhaust.
Protective Gloves: Wear rubber or plastic gloves.
Eye/Face Protection: Wear safety glasses, goggles or full face protections.
Respiratory Protection: Wear filtered cartridge respirator or a respirator of greater protection.

9. Physical and Chemical Properties

Product Type: Solid
Appearance: Prismatic
Odor: Odorless

10. Stability and Reactivity

Stability: YES
Cond To Avoid (Stability): NONE SPECIFIED BY MANUFACTURER.
Materials To Avoid: NONE SPECIFIED BY MANUFACTURER.
Hazardous Decomp Products: NONE SPECIFIED BY MANUFACTURER.
Hazardous Poly Occur: NO
Conditions To Avoid (Poly): NOT RELEVANT.

11. Toxicological Information

In case electrolyte is spilled and explored with air, the HF could be released.
May include hydrogen fluoride and carbon oxides gas.
May cause skin and eye irritation when contacted.

12. Ecological Information

If the battery scrapped, it should be selected and disposed by professional company.

13. Disposal Consideration

Disposal should be in accordance with local, state or national legislation.

14. Transport Information

UN No: UN3480 / UN3481
The battery models listed have aggregate equivalent lithium content below the 0.03g and the Watt hour is not more than 100Wh. And shipment contains no item listed under IATA DGR Packing instruction PI-965 to PI-967 Section II and meets all requirements under UN Manual of Tests and Criteria Part III, subsection 38.3

<table>
<thead>
<tr>
<th>UN 38.3 Lithium Battery</th>
<th>Test results</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO Test item</td>
<td>OK</td>
<td>Test 1 to 5 must be conducted in sequence on the same cell or battery</td>
</tr>
<tr>
<td>T1 Altitude simulation</td>
<td>OK</td>
<td></td>
</tr>
<tr>
<td>T2 Thermal test</td>
<td>OK</td>
<td></td>
</tr>
<tr>
<td>T3 Vibration</td>
<td>OK</td>
<td></td>
</tr>
<tr>
<td>T4 Shock</td>
<td>OK</td>
<td></td>
</tr>
<tr>
<td>T5 External short circuit</td>
<td>OK</td>
<td></td>
</tr>
<tr>
<td>T6 Impact</td>
<td>OK</td>
<td></td>
</tr>
<tr>
<td>T7 Overcharge</td>
<td>OK</td>
<td>Only battery do need this test item</td>
</tr>
<tr>
<td>T8 Forced discharge</td>
<td>OK</td>
<td>For cell only</td>
</tr>
</tbody>
</table>

The product is not classified as dangerous under the current edition of the 2014 IATA dangerous goods regulations. The products are safe for air transportation and not regulated by IATA DGR. Also they comply with the PI-965 to PI-967 Section II accordingly.
15. Regulatory Information

See ACGIH exposure limits information as noted in Section 3.
US: This MSDS meets/exceeds OSHA requirements
International: this MSDS conforms to European Union (UN), the International Standards Organization (ISO)

16. Other Information

Reference:
Chemical substances information: Japan Advanced Information center of Safety and Health
International Chemical Safety Cards (ICSCs): International Occupational Safety and Health Information Centre (CIS)
2002 TLVs and BELs: American Conference of Governmental Industrial Hygienists (ACGIH)
The European Agreement concerning the International Carriage of Dangerous Goods by Road-2009:
The United Nations Economic Commission for Europe (UNECE)
MSDS of raw materials prepared by the manufactures